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Dated 26 July 2004

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Patents Act 1977  
(Rule 16)**The  
Patent  
Office**177  
23APR04 EB9011-2 D02336  
P01/7700 0.00-0408993.4 CHEQUE**Request for grant of a patent**

*(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)*

The Patent Office

Cardiff Road  
Newport  
Gwent NP9 1RH

1. Your reference	SP/KE/LT/N15579
2. Patent application number <i>(The Patent Office will fill this part)</i>	0408993.4
3. Full name, address and postcode of the or of each applicant <i>(underline all surnames)</i>	22 APR 2004

Cognifex Limited  
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Middlesex TW2 7AH, United Kingdom

8755548001

Patents ADP number *(if you know it)*

United Kingdom

If the applicant is a corporate body, give the country/state of its incorporation

## 1. Title of the invention

Illuminated Article

i. Name of your agent <i>(if you have one)</i>	Williams Powell
"Address for service" in the United Kingdom to which all correspondence should be sent <i>(including the postcode)</i>	Morley House, 26-30 Holborn Viaduct London EC1A 2BP
Patents ADP number <i>(if you know it)</i>	5830310001
If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and <i>(if you know it)</i> the or each application number	Country      Priority application number <i>(if you know it)</i> Date of filing <i>(day / month / year)</i>
	GB      0313627.2      12 June 2003
	GB      0326859.6      18 November 2003

If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application.

Number of earlier application	Date of filing <i>(day / month / year)</i>

Is a statement of inventorship and of right to grant of a patent required in support of this request? *(answer 'Yes if:*

- a) any applicant named in part 3 is not an inventor, or
  - b) there is an inventor who is not named as an applicant, or
  - c) any named applicant is a corporate body.
- See note (d))*

Yes

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Description	4
Claim(s)	
Abstract	
Drawing(s)	1 + 102

10. If you are filing one of the following, state how many against each item.

Priority documents

Translations of priority documents

Statement of inventorship and right to grant of a patent (*Patents Form 7/77*)

Request for preliminary examination and search (*Patents Form 9/77*)

Request for substantive examination (*Patents Form 10/77*)

Any other documents  
(please specify)

11.

I/we request the grant of a patent on the basis of this application.

Signature

Date

22 April 2004

12. Name and daytime telephone number of person to contact in the United Kingdom

Mr Lee Anderson 020 7936 3300

#### Warning

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Illuminated Article

The present invention relates to modifications and improvements of the articles disclosed in co-pending UK Patent applications 0313627.2 and 0326859.6.

According to a first aspect of the present invention, there is provided an article provided with illumination means, the illumination means comprising a substantially flat light-emitting element applied to or incorporated in the article, and actuation means for illuminating the illumination means upon the occurrence of a predetermined event.

The actuation means is preferably a switch connected to a circuit for illuminating the illumination means. The article is preferably portable. The article is preferably a container and the predetermined event may be the opening of the container.

According to a second aspect of the present invention there is provided a container having closure means and means for indicating opening of said closure means by means of a signal, the indicating means being applied to or incorporated in the container and being connected to the closure means by means of substantially transparent electrically conductive means.

The container is preferably a bottle or jar of transparent material with the closure means provided at the top and the indicating means being provided on the side of the bottle. A circuit for producing the signal may also be provided on the side of the bottle, e.g. beneath the indicating means, or on the bottom of the bottle, e.g. in a recess. The signal is preferably in the form of a light signal. The indicating means may be a label or part of a label identifying the contents of the bottle or jar.

Preferred embodiments of the present invention will now be described, by way of example only, with reference to the accompanying drawings, of which:

Fig. 1 is a side cross-sectional view of a bottle incorporating an illumination device in accordance with a first embodiment of the present invention;

Fig. 2 is a front view of a modification of the bottle of Fig. 1;

Fig. 3 is a perspective view of a bottle in accordance with a second embodiment of the present invention; and

Fig. 4 is an enlarged view of the top of the bottle of Fig. 3.

Referring now to the drawings, Fig. 1 shows a bottle 120 having conductive strips 121 applied to the exterior surface of the bottle between its top 123 and a side region 124 to which is applied a label 125. The label is partly or substantially wholly constructed by an electroluminescent device 127 comprising a thin sheet of electroluminescent material.

The electroluminescent device 127 is constructed using phosphor inks printed on a plastics substrate and is over-printed with printed graphics to constitute label 125. The electroluminescent material may be organic or inorganic and emits light when an AC or DC electric field is applied (depending on its type).

A control and power supply circuit 130 is provided in a recess 132 in the side wall of the bottle beneath label 125.

In use, removal of the bottle cap 122 is detected via conductive strips 121 by the circuit 130 which is activated to uniformly illuminate the whole of label 125 or a selected part thereof, e.g. a part carrying a particular symbol or a logo.

An advantage of the use of the electroluminescent material is that it enables an extremely thin and flexible label to be provided and permits animated displays.

Moreover, the display features of the label are visible under normal lighting conditions so that the label can be read even without being illuminated by circuit 130.

In a modification, the electroluminescent material is used to illuminate the walls of the bottle itself, or part thereof, or the contents of the bottle, or part thereof. Instead of a electroluminescent material, an organic light-emitting diode may be used.

The bottle can be of transparent or translucent glass or plastics material. However, the container does not need to be transparent, and can be a box, packet, tin or other openable container and can be made of cardboard, plastics material, metal etc.

In the modification of Fig. 2, the electroluminescent device 227 is illuminated by an event other than the opening of bottle 220, e.g. the attainment of a particular temperature or the receipt of a predetermined r.f. signal. Alternatively, the device 227 can be illuminated at intervals, even while it is on a shelf before use. This brings the bottle 220 or other container to the attention of a prospective purchaser or user. In this case, the conductive strips 121 can be omitted. In a further modification, instead of being mounted behind device 227 the circuit 130 may be located in a recess 225 in the exterior of the base.

Referring now to Figs. 3 and 4, a bottle 320 has a recess 325 similar to recess 225 in the exterior of the base for housing a control and power circuit (not shown) for an electroluminescent device. The electroluminescent device and the connections thereto are not shown in Figs. 3 and 4, but it can be located at the side of the bottle, as in Figs. 1 and 2, or it can be located within recess 325, e.g. on top of the circuit, from where it illuminates the contents of the bottle.

The conductive strips 321 in this embodiment are of a transparent conducting oxide material such as indium tin oxide (otherwise known as tin-doped indium oxide or ITO). Another suitable material is aluminium-doped zinc oxide. These materials

combine electrical conductivity with high relative transparency (transmissivity). The bottle cap 122, when in place, makes a connection between strips 321 at the top of the bottle (see Fig. 4), the connection being broken when the bottle is opened by removing the cap. The ends 324 of strips 321 serve as connections to the control and power circuit.

This arrangement has the advantage that the conductors are substantially invisible and thus do not detract from the aesthetic look or artistic design of the bottle. The bottle may be replaced by any other container, and the advantage of transparent conductors applies whether the material of the container is transparent or opaque.

If the event which is to activate the electroluminescent device is not the removal of the cap (as with the embodiment of Fig. 2), the conductive strips 321 do not need to extend to the top of the bottle.

The circuit 130, which may have an in-built or a separate power source, can be located anywhere inside or outside the container.

The features and modifications of the above-described embodiments may be combined and/or interchanged with each other and also with any of the features and modifications of any of the embodiments of co-pending applications 0313627.2 and 0326859.6.



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